



#13

SEQUENCE LISTING

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aag ttc ttg tta tat tat gcg ggc gaa gtg gct aga aag cgc aaa gca	280
Lys Phe,Leu Leu Tyr Tyr Ala Gly Glu Val Ala Arg Lys Arg Lys Ala	
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Glu Gly Leu Lys Leu Asn Gln Pro Glu Ala Ile Ala Tyr Ile Ser Ala	
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His Ile Met Asp Glu Ala Arg Arg Gly Lys Lys Thr Val Ala Gln Leu	
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Met Glu Glu Cys Met His Phe Leu Lys Lys Asp Glu Val Met Pro Gly	
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Val Gly Asn Met Val Pro Asp Leu Gly Val Glu Ala Thr Phe Pro Asp	
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Gly Thr Lys Leu Val Thr Val Asn Trp Pro Ile Glu Pro Asp Glu His	
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ttc aaa gcg ggc gaa gtg aaa ttt ggt tgc gat aaa gac atc gag ctc	568
Phe Lys Ala Gly Glu Val Lys Phe Gly Cys Asp Lys Asp Ile Glu Leu	
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Asn Ala Gly Lys Glu Val Thr Glu Leu Glu Val Thr Asn Glu Gly Pro	
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Lys Ser Leu His Val Gly Ser His Phe His Phe Phe Glu Ala Asn Lys	
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Ala Leu Lys Phe Asp Arg Glu Lys Ala Tyr Gly Lys Arg Leu Asp Ile
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 Lys Ala Lys Ser His Gly Phe Ile Lys Met Lys Met
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Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val Val Gly Val	
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Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr Ala Gly Gly	
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Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Gly Thr Gly Pro Val	
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Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp Asn Leu His	
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cgc atg ttg cgc gca gca gaa gag tat tct atg aat gtg ggc ttt ttg	1481
Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val Gly Phe Leu	
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Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu Gln Val Glu	
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Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly Thr Thr Pro	
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Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr Asp Val Gln
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 Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr Val Asp Asp
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acc cta aat gca atg aac ggg cgc gcc atc cat gcc tac cac att gag 1721
 Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr His Ile Glu
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Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His Gly Val Ser	
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Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp Leu Val Val	
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Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His His Gly Lys	
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Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val Ala Tyr Glu	
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Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Gln Val Leu Pro Val	
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aaa aac tgc cgt aac atc acc aag aaa gac ttc aag ttc aac gac aaa	2489
Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe Asn Asp Lys	
745 750 755	
acg gca aaa atc acc gtc gat ccg aaa acc ttc gag gtc ttt gta gat	2537

Thr Ala Lys Ile Thr Val Asp Pro Lys Thr Phe Glu Val Phe Val Asp
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ggc aaa ctc tgc acc tct aaa ccc acc tcg caa gtg cct cta gcc cag 2585
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 775 780 785 790

cgc tac act ttc ttc tag gcacaatgcc ccctttgggg gcaggttatt 2633
 Arg Tyr Thr Phe Phe
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Arg Gly Lys Lys Thr Val Ala Gln Leu Met Glu Glu Cys Met His Phe

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55

60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
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Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
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Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

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Ile Lys
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35 40 45

Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr
50 55 60

Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile
65 70 75 80

Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly
85 90 95

Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val
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Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr
115 120 125

Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe
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Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Gly Thr
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Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp
165 170 175

Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val

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Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly		
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Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr		
225	230	235 240
Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr		
245	250	255
Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr		
260	265	270
His Ile Glu Gly Ala Gly Gly Gly His Ser Pro Asp Val Ile Thr Met		
275	280	285
Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro		
290	295	300
Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys		
305	310	315 320
His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser		
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Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Met		
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Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala		
355	360	365
Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys		
370	375	380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Lys Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
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420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
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Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
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His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val
485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Gln Val
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Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
515 520 525

Asn Asp Lys Thr Ala Lys Ile Thr Val Asp Pro Lys Thr Phe Glu Val
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ccc gaa gcc att gcc tac att agt gcc cat att atg gac gag gcg cgc 144

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg

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cgt ggc aaa aaa acc gtt gct gaa ctt atg gaa gaa tgt atg cac ttt 192

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe

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ttg aaa aaa gat gag gtg atg ccc ggt gtg ggg aat atg gtc cct gat 240

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp

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Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val

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Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys	
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Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr	
115 120 125	
gag ctt gaa gtt acc aac gaa gga cct aaa tcc ttg cat gtg ggt agc	432
Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser	
130 135 140	
cat ttc cac ttc ttt gaa acc aac aag gca ttg aaa ttc gat cgg gaa	480
His Phe His Phe Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg Glu	
145 150 155 160	
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Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg	
165 170 175	
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Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly	
180 185 190	
agt aaa aaa gtg att ggc atg aac ggg ctt gtg aat aat att gcg gac	624
Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp	
195 200 205	
gaa cgc cat aaa cac aaa gca cta gac aag gca aaa tct cac gga ttc	672
Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe	
210 215 220	
atc aag taa ggagactccc atg aaa atg aaa aaa caa gag tat gta aac	721
Ile Lys Met Lys Met Lys Lys Gln Glu Tyr Val Asn	
225 230 235	
acc tac gga ccc acc aca ggc gat aaa gtg cgc tta gga gat acc gat	769
Thr Tyr Gly Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr Asp	

240

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ctt tgg gca gaa gta gaa cat gac tat acc act tat ggc gaa gag ctc 817
 Leu Trp Ala Glu Val Glu His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu

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aaa ttt ggc gcg ggt aaa act atc cgt gag ggt atg ggt cag agc aat 865
 Lys Phe Gly Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser Asn
 270 275 280 285

agc cca gat gaa aac acc tta gat tta gtg atc acc aac gcg atg att 913
 Ser Pro Asp Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met Ile

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atc gac tac acc ggg att tat aaa gcc gac att ggt att aaa aat ggc 961
 Ile Asp Tyr Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly

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315

aaa atc cat ggt att ggc aag gcg ggg aac aaa gac atg caa gat ggc 1009
 Lys Ile His Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp Gly

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350

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360

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ctc tct ccc caa caa ttc cct acc gct cta gcc aat ggt gtt aca acc 1153
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atc act ccg ggc aaa tgg aac ttg cac cgc atg ttg cgc gca gct gaa 1249
 Ile Thr Pro Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala Glu
 400 405 410

gag tat tct atg aat gtg ggc ttt ttg ggc aaa ggc aat agc tcc agt 1297
 Glu Tyr Ser Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser
 415 420 425

aaa aaa caa ctc gta gaa caa gta gaa gcg ggc gcg att ggc ttt aaa 1345
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 430 435 440 445

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 Ser Val Ala Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp Thr
 465 470 475

gtc aat gag gca ggt tat gta gat gac acc cta aat gcg atg aac ggg 1489
 Val Asn Glu Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn Gly
 480 485 490

cgc gcc atc cat gcc tac cac att gag gga gcg ggc gga gga cac tca 1537
 Arg Ala Ile His Ala Tyr His Ile Glu Gly Ala Gly Gly Gly His Ser
 495 500 505

cct gat gtt atc acc atg gca ggc gag ctc aat att cta ccc tcc tcc 1585
 Pro Asp Val Ile Thr Met Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser
 510 515 520 525

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 Thr Thr Pro Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His Leu
 530 535 540

gac atg ctc atg acc tgc cac cac cta gac aaa cgc atc cgc gag gat 1681
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550

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 575 580 585

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 590 595 600 605

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 Ala Asp Lys Asn Lys Lys Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala
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 625 630 635

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 640 645 650

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 Glu Gly Lys Ile Ala Asp Leu Val Val Trp Asn Pro Ala Phe Phe Gly
 655 660 665

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 690 695 700

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 Arg Glu Met Phe Gly His His Gly Lys Ala Lys Phe Asp Thr Ser Ile

705 710 715

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 Thr Phe Val Ser Lys Val Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu

720 725 730

ggc tta gag cgc aag gtg cta ccc gtg aaa aac tgc cgc aac atc act 2257
 Gly Leu Glu Arg Lys Val Leu Pro Val Lys Asn Cys Arg Asn Ile Thr

735 740 745

aag aaa gac ttc aaa ttc aac aac aag acg gcg cat atc act gtc gat 2305
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750 755 760 765

cct aaa acc ttc gag gtc ttt gta gat ggc aaa ctc tgc acc tct aaa 2353
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770 775 780

ccc gcc tct gaa gtg cct cta gcc caa cgc tac act ttc ttc tag 2398
 Pro Ala Ser Glu Val Pro Leu Ala Gln Arg Tyr Thr Phe Phe

785 790 795

gcacaat 2405

<210> 5

<211> 226

<212> PRT

<213> Helicobacter felis

<400> 5

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1 5 10 15

Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln

20 25 30

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
35 40 45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
50 55 60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
65 70 75 80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
85 90 95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe
210 215 220

Ile Lys

225

<210> 6

<211> 568

<212> PRT

<213> Helicobacter felis

<400> 6

Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
1 5 10 15

Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu
20 25 30

His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys
35 40 45

Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr
50 55 60

Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile
65 70 75 80

Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly
85 90 95

Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val
100 105 110

Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr
115 120 125

Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe
130 135 140

Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Gly Thr
145 150 155 160

Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp
165 170 175

Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val
180 185 190

Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu
195 200 205

Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly
210 215 220

Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr
225 230 235 240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly Gly His Ser Pro Asp Val Ile Thr Met
275 280 285

Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala

355

360

365

Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
450 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val
485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Lys Val
500 505 510

Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
515 520 525

Asn Asn Lys Thr Ala His Ile Thr Val Asp Pro Lys Thr Phe Glu Val
530 535 540

Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Ala Ser Glu Val Pro
545 550 555 560

Leu Ala Gln Arg Tyr Thr Phe Phe
565

<210> 7

<211> 2183

<212> DNA

<213> Helicobacter felis

<220>

<221> CDS

<222> (3)..(683)

<220>

<221> CDS

<222> (694)..(2181)

<400> 7

tc gtg aaa ctc aca ccc aaa gag caa gaa aag ttc ttg tta tat tat 47
Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr
1 5 10 15

gcg ggc gaa gtg gct aga aag cgc aaa gca gag ggc tta aag ctc aat 95
Ala Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn
20 25 30

caa ccc gaa gcc att gcc tac att agt gcc cat att atg gac gag gcg 143
Gln Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala
35 40 45

cgc cgt ggc aaa aaa acc gtt gct gaa ctt atg gaa gaa tgt atg cac 191
Arg Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His
50 55 60

ttt ttg aaa aaa gat gag gtg atg ccc ggt gtg ggg aat atg gtc cct 239
Phe Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro
65 70 75

gat ttg ggc gta gaa gcc act ttc ccc gat ggc acc aaa ctc gta acc	287
Asp Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr	
80 85 90 95	
gtg aat tgg ccc att gaa cct gat gaa cac ttt aaa gcc ggt gaa gtg	335
Val Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val	
100 105 110	
aaa ttt ggc tgt gat aaa gac att gag ctc aac gtg ggt aag gaa gtt	383
Lys Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Val Gly Lys Glu Val	
115 120 125	
acc gag ctt gaa gtt acc aac gaa gga cct aaa tcc ttg cat gtg ggt	431
Thr Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly	
130 135 140	
agc cat ttc cac ttc ttt gaa acc aac aag gca ttg aaa ttc gat cgg	479
Ser His Phe His Phe Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg	
145 150 155	
gaa aaa gcc tat ggc aaa cgc cta gat att ccc tct ggc aac acg cta	527
Glu Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu	
160 165 170 175	
cgc att ggg gca gga caa acc cgt aaa gtg cag tta atc cct ctt ggc	575
Arg Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly	
180 185 190	
ggg agt aaa aaa gtg att ggc atg aac ggg ctt gtg aat aat att gcg	623
Gly Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala	
195 200 205	
gac gaa cgc cat aaa cac aaa gca cta gac aag gca aaa tct cac gga	671
Asp Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly	
210 215 220	
ttc atc aag taa ggagactccc atg aaa atg aaa aaa caa gag tat gta	720

Phe Ile Lys	Met Lys Met Lys Lys Gln Glu Tyr Val	
225	230	235
aac acc tac gga ccc acc aca ggc gat aaa gtg cgc tta gga gat acc	768	
Asn Thr Tyr Gly Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr		
240	245	250
gat ctt tgg gca gaa gta gaa cat gac tat acc act tat ggc gaa gag	816	
Asp Leu Trp Ala Glu Val Glu His Asp Tyr Thr Thr Tyr Gly Glu Glu		
255	260	265
ctc aaa ttt ggc gcg ggt aaa act atc cgt gag ggt atg ggt cag agc	864	
Leu Lys Phe Gly Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser		
270	275	280
aat agc cca gat gaa aac acc tta gat tta gtg atc acc aac gcg atg	912	
Asn Ser Pro Asp Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met		
285	290	295
att atc gac tac acc ggg att tat aaa gcc gac att ggt att aaa aat	960	
Ile Ile Asp Tyr Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn		
305	310	315
ggc aaa atc cat ggt att ggc aag gcg ggg aac aaa gac atg caa gat	1008	
Gly Lys Ile His Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp		
320	325	330
ggc gta agc cct cat atg gtc gtg ggt gtg ggc aca gaa gca cta gca	1056	
Gly Val Ser Pro His Met Val Val Gly Val Gly Thr Glu Ala Leu Ala		
335	340	345
ggg gaa ggt atg att att acc gct ggg ggg atc gat tcg cac acc cac	1104	
Gly Glu Gly Met Ile Ile Thr Ala Gly Gly Ile Asp Ser His Thr His		
350	355	360
ttc ctc tct ccc caa caa ttc cct acc gct cta gcc aat ggt gtt aca	1152	
Phe Leu Ser Pro Gln Gln Phe Pro Thr Ala Leu Ala Asn Gly Val Thr		
365	370	375
		380

acc atg ttt gga ggt ggc aca ggt ccg gta gat ggc acg aat gcg acc	1200
Thr Met Phe Gly Gly Gly Thr Gly Pro Val Asp Gly Thr Asn Ala Thr	
385 390 395	
acc atc act ccg ggc aaa tgg aac ttg cac cgc atg ttg cgc gca gct	1248
Thr Ile Thr Pro Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala	
400 405 410	
gaa gag tat tct atg aat gta ggc ttt ttg ggc aaa ggc aat agt tct	1296
Glu Glu Tyr Ser Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser	
415 420 425	
agc aaa aaa caa ctt gta gaa caa gta gaa gcg ggc gcg att ggc ttt	1344
Ser Lys Lys Gln Leu Val Glu Gln Val Glu Ala Gly Ala Ile Gly Phe	
430 435 440	
aaa ttg cat gaa gac tgg ggc aca aca cca agt gcg atc gat cac tgc	1392
Lys Leu His Glu Asp Trp Gly Thr Thr Pro Ser Ala Ile Asp His Cys	
445 450 455 460	
ttg agc gtg gca gat gaa tac gat gtg caa gtt tgt atc cac acc gat	1440
Leu Ser Val Ala Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp	
465 470 475	
acg gtc aat gag gca ggt tat gtg gat gac acc cta aat gca atg aac	1488
Thr Val Asn Glu Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn	
480 485 490	
ggg cgc gcc atc cat gcc tac cac att gag gga gcg ggc gga gga cac	1536
Gly Arg Ala Ile His Ala Tyr His Ile Glu Gly Ala Gly Gly Gly His	
495 500 505	
tca cct gat gtt atc acc atg gca ggc gag ctc aat att cta ccc tcc	1584
Ser Pro Asp Val Ile Thr Met Ala Gly Glu Leu Asn Ile Leu Pro Ser	
510 515 520	
tcc acc acc ccc act att ccc tat acc att aat acg gtt gca gaa cac	1632

Ser Thr Thr Pro Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His
 525 530 535 540

tta gac atg ctc atg acc tgc cac cac cta gat aag cgc atc cgc gag 1680
 Leu Asp Met Leu Met Thr Cys His His Leu Asp Lys Arg Ile Arg Glu
 545 550 555

gat tta caa ttt tct caa agc cgt atc cgc ccc gga tct att gcc gct 1728
 Asp Leu Gln Phe Ser Gln Ser Arg Ile Arg Pro Gly Ser Ile Ala Ala
 560 565 570

gag gat gtg ctc cat gat att ggc gtg atc gcg atg act agc tcc gat 1776
 Glu Asp Val Leu His Asp Ile Gly Val Ile Ala Met Thr Ser Ser Asp
 575 580 585

tcg caa gca atg ggg cgc gct ggg gaa gtg att cct aga act tgg caa 1824
 Ser Gln Ala Met Gly Arg Ala Gly Glu Val Ile Pro Arg Thr Trp Gln
 590 595 600

act gca gat aag aat aaa aaa gaa ttt ggt aag ctt cct gaa gat ggt 1872
 Thr Ala Asp Lys Asn Lys Lys Glu Phe Gly Lys Leu Pro Glu Asp Gly
 605 610 615 620

gca gat aac gac aac ttc cgc atc aaa cgc tat atc tcc aaa tac acc 1920
 Ala Asp Asn Asp Asn Phe Arg Ile Lys Arg Tyr Ile Ser Lys Tyr Thr
 625 630 635

att aat ccc gct ttg acc cat ggc gtg agc gag tat atc ggc tct gtg 1968
 Ile Asn Pro Ala Leu Thr His Gly Val Ser Glu Tyr Ile Gly Ser Val
 640 645 650

gaa gag ggc aag atc gcc gac ttg gtg gtg tgg aat cct gcc ttt ttt 2016
 Glu Glu Gly Lys Ile Ala Asp Leu Val Val Trp Asn Pro Ala Phe Phe
 655 660 665

ggc gtg aaa cct aag att gtg att aaa ggt ggc atg gtg gtc ttc tct 2064
 Gly Val Lys Pro Lys Ile Val Ile Lys Gly Gly Met Val Val Phe Ser
 670 675 680

gaa atg ggc gat tct aac gcg tcc gtg ccc acg cct cag ccg gtt tat 2112
 Glu Met Gly Asp Ser Asn Ala Ser Val Pro Thr Pro Gln Pro Val Tyr
 685 690 695 700

tac cgc gaa atg ttt ggg cac cac ggc aag gcg aaa ttt gac acc agc 2160
 Tyr Arg Glu Met Phe Gly His His Gly Lys Ala Lys Phe Asp Thr Ser
 705 710 715

atc act ttt cgt gtc tca agc gg 2183
 Ile Thr Phe Arg Val Ser Ser
 720

<210> 8

<211> 226

<212> PRT

<213> Helicobacter felis

<400> 8

Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala
 1 5 10 15

Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln
 20 25 30

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
 35 40 45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
 50 55 60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
 65 70 75 80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
 85 90 95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Val Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Thr Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe
210 215 220

Ile Lys
225

<210> 9

<211> 496

<212> PRT

<213> Helicobacter felis

<400> 9

Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
1 5 10 15

Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu

20	25	30
His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys		
35	40	45
Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr		
50	55	60
Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile		
65	70	75 80
Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly		
85	90	95
Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val		
100	105	110
Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr		
115	120	125
Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe		
130	135	140
Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Gly Thr		
145	150	155 160
Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp		
165	170	175
Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val		
180	185	190
Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu		
195	200	205
Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly		
210	215	220

Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr
225 230 235 240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly Gly His Ser Pro Asp Val Ile Thr Met
275 280 285

Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala
355 360 365

Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
 435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
 450 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
 465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Arg Val Ser Ser
 485 490 495

<210> 10

<211> 2407

<212> DNA

<213> Helicobacter felis

<220>

<221> CDS

<222> (2)..(682)

<220>

<221> CDS

<222> (693)..(2399)

<400> 10

c gtg aaa ctc aca ccc aaa gag caa gaa aag ttc ttg tta tat tat gcg 49
 Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala
 1 5 10 15

ggc gaa gtg gct aga aag cgc aaa gcg gag ggc tta aag ctc aac caa 97
 Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln
 20 25 30

ccc gaa gcc att gcc tac att agt gcc cat att atg gac gag gcg cgc 145

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
 35 40 45

cgt ggc aaa aag acc gtt gcg gaa ctt atg gaa gag tgt atg cac ttt 193
 Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
 50 55 60

ttg aaa aaa gac gag gtg atg ccc ggt gtg ggg aat atg gtc cct gat 241
 Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
 65 70 75 80

tta ggc gtg gaa gct act ttt ccc gat ggc acc aaa ctc gta acc gtg 289
 Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
 85 90 95

aat tgg ccc atc gaa ccc gat gaa cac ttc aaa gcg ggc gaa gtc aaa 337
 Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
 100 105 110

ttt ggc tgt gat aaa gac att gaa ctc aac gca ggt aag gaa gtt acc 385
 Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
 115 120 125

gaa cta gaa gtt acc aac gaa gga cct aaa tcc ttg cat gtg ggt agc 433
 Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
 130 135 140

cat ttc cac ttc ttt gaa gcc aac aag gca ttg aaa ttc gat cgg gaa 481
 His Phe His Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu
 145 150 155 160

aaa gcc tat ggc aaa cgc cta gat att ccc tct ggc aac acg cta cgc 529
 Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
 165 170 175

att ggg gca gga caa acc cgt aaa gtg cag tta atc cct ctt ggc ggc 577
 Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
 180 185 190

agt aaa aaa gtg att ggc atg aac ggg ctt gtg aat aat att gca gat	625
Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp	
195 200 205	
gaa cgc cat aaa cac aaa gcg tta gaa aaa gca aaa tct cac gga ttt	673
Glu Arg His Lys His Lys Ala Leu Glu Lys Ala Lys Ser His Gly Phe	
210 215 220	
atc aaa taa ggagactccc atg aaa atg aaa aaa caa gag tat gta aat	722
Ile Lys Met Lys Met Lys Lys Gln Glu Tyr Val Asn	
225 230 235	
acc tac gga cct acc aca ggc gac aaa gtg cgc tta gga gat acc gat	770
Thr Tyr Gly Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr Asp	
240 245 250	
ctt tgg gca gaa gta gaa cat gac tat acc act tat ggc gaa gag ctc	818
Leu Trp Ala Glu Val Glu His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu	
255 260 265	
aaa ttt ggc gcg ggt aaa act atc cgt gag ggc atg ggt cag agc aat	866
Lys Phe Gly Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser Asn	
270 275 280 285	
agt cca gat gaa aac acc cta gat tta gtc atc acc aac gcg atg att	914
Ser Pro Asp Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met Ile	
290 295 300	
att gac tac acc ggg att tac aaa gcc gac att ggc att aaa aat ggc	962
Ile Asp Tyr Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly	
305 310 315	
aaa atc cat ggc att ggc aag gca gga aac aag gac atg caa gat ggc	1010
Lys Ile His Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp Gly	
320 325 330	
gta agc cct cat atg gtc gtg ggt gtg ggc aca gaa gca tta gca ggg	1058

Val Ser Pro His Met Val Val Gly Val Gly Thr Glu Ala Leu Ala Gly
 335 340 345

gaa ggt atg att att acc gct ggg ggg atc gat tca cac acc cac ttc 1106
 Glu Gly Met Ile Ile Thr Ala Gly Gly Ile Asp Ser His Thr His Phe
 350 355 360 365

ctc tct cca caa caa ttc cct acc gct cta gcc aat ggc gtt aca acc 1154
 Leu Ser Pro Gln Gln Phe Pro Thr Ala Leu Ala Asn Gly Val Thr Thr
 370 375 380

atg ttt ggc ggt ggc aca ggt ccg gta gat ggc acg aat gcg act acc 1202
 Met Phe Gly Gly Gly Thr Gly Pro Val Asp Gly Thr Asn Ala Thr Thr
 385 390 395

atc act ccg ggc aaa tgg aac ttg cac cgc atg ttg cgc gca gct gaa 1250
 Ile Thr Pro Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala Glu
 400 405 410

gag tat tct atg aat gtg ggc ttt ttg ggc aaa ggc aat agc tcc agt 1298
 Glu Tyr Ser Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser
 415 420 425

aaa aaa caa ctt gta gaa caa ata gaa gcg ggc gcg atc ggc ttt aaa 1346
 Lys Lys Gln Leu Val Glu Gln Ile Glu Ala Gly Ala Ile Gly Phe Lys
 430 435 440 445

ttg cat gaa gac tgg ggc aca act cca agt gca atc gat cac tgc ttg 1394
 Leu His Glu Asp Trp Gly Thr Thr Pro Ser Ala Ile Asp His Cys Leu
 450 455 460

agc gta gca gat gaa tac gat gtg caa gtt tgt atc cac acc gat acg 1442
 Ser Val Ala Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp Thr
 465 470 475

gtc aat gag gca ggt tat gta gat gac acc ctg aat gcg atg aac ggg 1490
 Val Asn Glu Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn Gly
 480 485 490

cgc gcc atc cat gcc tac cac att gag gga gcg ggc gga gga cac tca	1538
Arg Ala Ile His Ala Tyr His Ile Glu Gly Ala Gly Gly Gly His Ser	
495 500 505	
cct gat gtt atc acc atg gca ggc gag ctc aat att cta ccc tcc tcc	1586
Pro Asp Val Ile Thr Met Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser	
510 515 520 525	
aca acc ccc act atc ccc tat acc att aat acg gtt gca gaa cac tta	1634
Thr Thr Pro Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His Leu	
530 535 540	
gac atg ctc atg acc tgc cac cac cta gat aaa cgc atc cgc gag gat	1682
Asp Met Leu Met Thr Cys His His Leu Asp Lys Arg Ile Arg Glu Asp	
545 550 555	
tta caa ttt tcc caa agc cgt atc cgc ccc ggc tct atc gcc gct gaa	1730
Leu Gln Phe Ser Gln Ser Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu	
560 565 570	
gat gtg ctc cat gat att ggc gtg atc gcg atg aca agc tcg gat tcg	1778
Asp Val Leu His Asp Ile Gly Val Ile Ala Met Thr Ser Ser Asp Ser	
575 580 585	
caa gca atg ggg cgc gct ggc gaa gtg att cct cga act tgg cag act	1826
Gln Ala Met Gly Arg Ala Gly Glu Val Ile Pro Arg Thr Trp Gln Thr	
590 595 600 605	
gcg gat aag aat aaa aaa gaa ttt ggt aag ctt cct gaa gat agt gca	1874
Ala Asp Lys Asn Lys Lys Glu Phe Gly Lys Leu Pro Glu Asp Ser Ala	
610 615 620	
gat aac gac aac ttc cgt atc aaa cgc tac atc tcc aaa tac act att	1922
Asp Asn Asp Asn Phe Arg Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile	
625 630 635	
aac ccc gct cta acc cat ggg gta agc gag tat atc ggc tct gtg gaa	1970

Asn Pro Ala Leu Thr His Gly Val Ser Glu Tyr Ile Gly Ser Val Glu
640 645 650

gag ggc aaa atc gct gat ttg gtg gtg tgg aat cct gcc ttt ttt ggt 2018
Glu Gly Lys Ile Ala Asp Leu Val Val Trp Asn Pro Ala Phe Phe Gly
655 660 665

gtg aaa cct aag att gtg atc aaa ggc ggt atg gtg gtc ttc tct gaa 2066
Val Lys Pro Lys Ile Val Ile Lys Gly Gly Met Val Val Phe Ser Glu
670 675 680 685

atg ggc gac tcc aac gcg tcc gtg cct aca cct cag ccg gtt tat tac 2114
Met Gly Asp Ser Asn Ala Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr
690 695 700

cgc gaa atg ttt ggg cat cac ggc aag gcg aaa ttt gac acc agc atc 2162
Arg Glu Met Phe Gly His His Gly Lys Ala Lys Phe Asp Thr Ser Ile
705 710 715

act ttt gtt tcc aaa gtc gcc tat gaa aat ggc gtg aaa gaa aaa cta 2210
Thr Phe Val Ser Lys Val Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu
720 725 730

ggc tta gag cgc aag gtg cta ccc gtg aaa aac tgc cgc aac atc act 2258
Gly Leu Glu Arg Lys Val Leu Pro Val Lys Asn Cys Arg Asn Ile Thr
735 740 745

aag aaa gac ttc aaa ttc aac aac aag acg gcg cat atc act gtc gat 2306
Lys Lys Asp Phe Lys Phe Asn Asn Lys Thr Ala His Ile Thr Val Asp
750 755 760 765

cct aaa acc ttc gag gtc ttt gta gat ggc aaa ctc tgc acc tct aaa 2354
Pro Lys Thr Phe Glu Val Phe Val Asp Gly Lys Leu Cys Thr Ser Lys
770 775 780

ccc gcc tct gaa gtg cct cta gcc cag cgc tac act ttc ttc tag 2399
Pro Ala Ser Glu Val Pro Leu Ala Gln Arg Tyr Thr Phe Phe
785 790 795

gcncaatg

2407

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<211> 226

<212> PRT

<213> Helicobacter felis

<400> 11

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Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln
20 25 30

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg
35 40 45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe
50 55 60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp
65 70 75 80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val
85 90 95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys
100 105 110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu

145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
 165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
 180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
 195 200 205

Glu Arg His Lys His Lys Ala Leu Glu Lys Ala Lys Ser His Gly Phe
 210 215 220

Ile Lys

225

<210> 12

<211> 568

<212> PRT

<213> Helicobacter felis

<400> 12

Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
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Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu
 20 25 30

His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys
 35 40 45

Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr
 50 55 60

Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile
 65 70 75 80

Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly
85 90 95

Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val
100 105 110

Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr
115 120 125

Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe
130 135 140

Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Gly Thr
145 150 155 160

Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp
165 170 175

Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val
180 185 190

Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu
195 200 205

Gln Ile Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly
210 215 220

Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr
225 230 235 240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly Gly His Ser Pro Asp Val Ile Thr Met

275

280

285

Ala Gly Glu Leu Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala
355 360 365

Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Ser Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
450 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val
 485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Lys Val
 500 505 510

Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
 515 520 525

Asn Asn Lys Thr Ala His Ile Thr Val Asp Pro Lys Thr Phe Glu Val
 530 535 540

Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Ala Ser Glu Val Pro
 545 550 555 560

Leu Ala Gln Arg Tyr Thr Phe Phe
 565

<210> 13

<211> 2452

<212> DNA

<213> Helicobacter felis

<220>

<221> CDS

<222> (48)..(728)

<220>

<221> CDS

<222> (739)..(2445)

<400> 13

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 Val Lys Leu

aca ccc aaa gag caa gaa aag ttc ttg tta tat tat gcg ggc gaa gtg 104
 Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala Gly Glu Val
 5 10 15

gct aga aag cgc aaa gca gag ggc tta aag ctc aac caa ccc gaa gcc 152
 Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln Pro Glu Ala
 20 25 30 35

att gcc tac att agt gcc cat att atg gac gag gcg cgt cgt ggc aaa 200
 Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg Arg Gly Lys
 40 45 50

aaa acc gtt gcg gaa ctt atg gaa gag tgt atg cac ttt ttg aaa aaa 248
 Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe Leu Lys Lys
 55 60 65

gac gag gtg atg ccc ggg gtg ggg aat atg gtc cct gat ttg ggc gtg 296
 Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp Leu Gly Val
 70 75 80

gaa gcc act ttc ccc gat ggc acc aaa ctc gta act gtg aat tgg ccc 344
 Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val Asn Trp Pro
 85 90 95

atc gaa cct gat gaa cac ttt aag gcg ggt gaa gtg aaa ttt ggc tgt 392
 Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys Phe Gly Cys
 100 105 110 115

gat aaa gac att gaa ctc aac gca ggt aag gaa gtt acc gaa cta gaa 440
 Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr Glu Leu Glu
 120 125 130

gtt act aac gaa gga cct aaa tcc ttg cat gtg ggt agc cat ttc cac 488
 Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser His Phe His
 135 140 145

ttc ttt gaa gcc aac aaa gca ttg aaa ttc gat cgg gaa aaa gcc tat 536
 Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu Lys Ala Tyr

150	155	160	
ggc aaa cgc cta gat att ccc tct ggc aac aca cta cgc att ggg gca			584
Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg Ile Gly Ala			
165	170	175	
gga caa acc cgt aaa gtg cag tta atc cct ctt ggc ggt agt aaa aaa			632
Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly Ser Lys Lys			
180	185	190	195
gtg att ggc atg aac ggg ctt gtg aat aat att gcg gac gaa cgc cat			680
Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp Glu Arg His			
200	205	210	
aaa cac aaa gcg cta gac aaa gca aaa tct cac gga ttt atc aag taa			728
Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe Ile Lys			
215	220	225	
ggagactccc atg aaa atg aaa aaa caa gag tat gta aat acc tac gga			777
Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly			
230	235	240	
ccc acc aca ggc gat aaa gtg cgc tta gga gat acc gat ctt tgg gca			825
Pro Thr Thr Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala			
245	250	255	
gaa gta gaa cat gac tat acc acc tat ggc gaa gaa ctc aaa ttc ggt			873
Glu Val Glu His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly			
260	265	270	
gca ggt aaa act atc cgt gag ggt atg ggt cag agc aat agc cca gat			921
Ala Gly Lys Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp			
275	280	285	
gaa aac acc tta gat tta gtg atc acc aac gcg atg att att gac tac			969
Glu Asn Thr Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr			
290	295	300	

acc ggg att tac aaa gcc gac att ggc att aaa aat ggc aaa atc cat	1017
Thr Gly Ile Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His	
305 310 315 320	
ggc att ggc aag gca gga aac aag gac atg caa gat ggc gta agc cct	1065
Gly Ile Gly Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro	
325 330 335	
cat atg gtc gtg ggt gtg ggc aca gaa gca cta gca ggg gaa ggt atg	1113
His Met Val Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met	
340 345 350	
att att acc gct ggg ggg atc gat tca cac acc cac ttc ctc tct cca	1161
Ile Ile Thr Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro	
355 360 365	
caa caa ttc cct acc gct cta gcc aat ggc gtt aca aca atg ttt ggc	1209
Gln Gln Phe Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly	
370 375 380	
ggg ggc aca ggc ccc gta gat ggc acg aat gcg act acc atc act ccg	1257
Gly Gly Thr Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro	
385 390 395 400	
ggc aaa tgg aac ttg cac cgc atg ttg cgc gca gca gaa gag tat tct	1305
Gly Lys Trp Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser	
405 410 415	
atg aat gtg ggc ttt ttg ggc aaa ggc aat agc tct agt aaa aaa caa	1353
Met Asn Val Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln	
420 425 430	
ctt gta gaa caa gta gaa gcg ggc gcg att ggt ttt aaa ttg cat gaa	1401
Leu Val Glu Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu	
435 440 445	
gac tgg ggc aca act cca agt gcg atc gat cac tgc ttg agc gta gca	1449
Asp Trp Gly Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala	

450	455	460	
gat gaa tac gat gtg caa gtt tgt ata cac acc gat acg gtc aat gag			1497
Asp Glu Tyr Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu			
465	470	475	480
gca ggt tat gta gat gac acc cta aat gca atg aac ggg cgc gcc atc			1545
Ala Gly Tyr Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile			
	485	490	495
cat gcc tac cac att gag gga gcg ggt gga gga cac tca cct gat gtt			1593
His Ala Tyr His Ile Glu Gly Ala Gly Gly Gly His Ser Pro Asp Val			
	500	505	510
atc acc atg gca ggc gaa gtg aat att cta ccc tcc tcc aca acc cct			1641
Ile Thr Met Ala Gly Glu Val Asn Ile Leu Pro Ser Ser Thr Thr Pro			
	515	520	525
act atc ccc tat acc att aat acg gtt gca gaa cac tta gac atg ctt			1689
Thr Ile Pro Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu			
	530	535	540
atg acc tgc cac cac cta gat aaa cgc atc cgc gag gat ctc caa ttt			1737
Met Thr Cys His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe			
545	550	555	560
tct caa agc cgt atc cgc ccc ggc tct atc gcc gct gaa gat gtg ctc			1785
Ser Gln Ser Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu			
	565	570	575
cat gat atc ggt gtg atc gcg atg aca agt tcc gat tcg caa gca atg			1833
His Asp Ile Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met			
	580	585	590
ggg cgc gct ggg gaa gtg att cct aga act tgg caa act gca gac aag			1881
Gly Arg Ala Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys			
	595	600	605

aat aaa aaa gaa ttt ggt aag ctt cct gaa gat ggt gca gat aat gac	1929
Asn Lys Lys Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala Asp Asn Asp	
610 , 615 620	
aac ttc cgc atc aaa cgc tat atc tcc aaa tac acc att aat ccc gct	1977
Asn Phe Arg Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala	
625 630 635 640	
ttg acc cat ggc gtg agc gag tat atc ggc tct gtg gaa gag ggc aag	2025
Leu Thr His Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys	
645 650 655	
atc gcc gac ttg gtg gtg tgg aat cct gcc ttt ttt ggc gta aaa ccc	2073
Ile Ala Asp Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro	
660 665 670	
aaa atc gtg atc aaa ggc ggt atg gtg gtg ttc tct gaa atg ggc gat	2121
Lys Ile Val Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp	
675 680 685	
tct aat gcg tct gtg ccc act cct cag ccg gtt tat tac cgc gaa atg	2169
Ser Asn Ala Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met	
690 695 700	
ttt ggg cat cac ggc aag gcg aaa ttt gac acc agc atc act ttt gtt	2217
Phe Gly His His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val	
705 710 715 720	
tcc aaa gtc gcc tat gaa aat ggt gtg aaa gaa aaa cta ggt tta gag	2265
Ser Lys Val Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu	
725 730 735	
cgc aag gtg ctc ccc gtg aaa aac tgc cgt aac atc acc aag aag gac	2313
Arg Lys Val Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp	
740 745 750	
ttc aag ttc aac gac aaa act gca aaa atc acc gtc gat ccg aaa acc	2361
Phe Lys Phe Asn Asp Lys Thr Ala Lys Ile Thr Val Asp Pro Lys Thr	

755

760

765

ttc gag gtc ttt gta gat ggc aaa ctc tgc acc tct aaa ccc acc tct 2409

Phe Glu Val Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Thr Ser

770

775

780

gaa gtg cct cta gcc caa cgc tac act ttc ttc tag gcataat 2452

Glu Val Pro Leu Ala Gln Arg Tyr Thr Phe Phe

785

790

795

<210> 14

<211> 226

<212> PRT

<213> Helicobacter felis

<400> 14

Val Lys Leu Thr Pro Lys Glu Gln Glu Lys Phe Leu Leu Tyr Tyr Ala

1

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10

15

Gly Glu Val Ala Arg Lys Arg Lys Ala Glu Gly Leu Lys Leu Asn Gln

20

25

30

Pro Glu Ala Ile Ala Tyr Ile Ser Ala His Ile Met Asp Glu Ala Arg

35

40

45

Arg Gly Lys Lys Thr Val Ala Glu Leu Met Glu Glu Cys Met His Phe

50

55

60

Leu Lys Lys Asp Glu Val Met Pro Gly Val Gly Asn Met Val Pro Asp

65

70

75

80

Leu Gly Val Glu Ala Thr Phe Pro Asp Gly Thr Lys Leu Val Thr Val

85

90

95

Asn Trp Pro Ile Glu Pro Asp Glu His Phe Lys Ala Gly Glu Val Lys

100

105

110

Phe Gly Cys Asp Lys Asp Ile Glu Leu Asn Ala Gly Lys Glu Val Thr
115 120 125

Glu Leu Glu Val Thr Asn Glu Gly Pro Lys Ser Leu His Val Gly Ser
130 135 140

His Phe His Phe Phe Glu Ala Asn Lys Ala Leu Lys Phe Asp Arg Glu
145 150 155 160

Lys Ala Tyr Gly Lys Arg Leu Asp Ile Pro Ser Gly Asn Thr Leu Arg
165 170 175

Ile Gly Ala Gly Gln Thr Arg Lys Val Gln Leu Ile Pro Leu Gly Gly
180 185 190

Ser Lys Lys Val Ile Gly Met Asn Gly Leu Val Asn Asn Ile Ala Asp
195 200 205

Glu Arg His Lys His Lys Ala Leu Asp Lys Ala Lys Ser His Gly Phe
210 215 220

Ile Lys
225

<210> 15

<211> 568

<212> PRT

<213> Helicobacter felis

<400> 15

Met Lys Met Lys Lys Gln Glu Tyr Val Asn Thr Tyr Gly Pro Thr Thr
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Gly Asp Lys Val Arg Leu Gly Asp Thr Asp Leu Trp Ala Glu Val Glu
20 25 30

His Asp Tyr Thr Thr Tyr Gly Glu Glu Leu Lys Phe Gly Ala Gly Lys

35

40

45

Thr Ile Arg Glu Gly Met Gly Gln Ser Asn Ser Pro Asp Glu Asn Thr
50 55 60

Leu Asp Leu Val Ile Thr Asn Ala Met Ile Ile Asp Tyr Thr Gly Ile
65 70 75 80

Tyr Lys Ala Asp Ile Gly Ile Lys Asn Gly Lys Ile His Gly Ile Gly
85 90 95

Lys Ala Gly Asn Lys Asp Met Gln Asp Gly Val Ser Pro His Met Val
100 105 110

Val Gly Val Gly Thr Glu Ala Leu Ala Gly Glu Gly Met Ile Ile Thr
115 120 125

Ala Gly Gly Ile Asp Ser His Thr His Phe Leu Ser Pro Gln Gln Phe
130 135 140

Pro Thr Ala Leu Ala Asn Gly Val Thr Thr Met Phe Gly Gly Gly Thr
145 150 155 160

Gly Pro Val Asp Gly Thr Asn Ala Thr Thr Ile Thr Pro Gly Lys Trp
165 170 175

Asn Leu His Arg Met Leu Arg Ala Ala Glu Glu Tyr Ser Met Asn Val
180 185 190

Gly Phe Leu Gly Lys Gly Asn Ser Ser Ser Lys Lys Gln Leu Val Glu
195 200 205

Gln Val Glu Ala Gly Ala Ile Gly Phe Lys Leu His Glu Asp Trp Gly
210 215 220

Thr Thr Pro Ser Ala Ile Asp His Cys Leu Ser Val Ala Asp Glu Tyr
225 230 235 240

Asp Val Gln Val Cys Ile His Thr Asp Thr Val Asn Glu Ala Gly Tyr
245 250 255

Val Asp Asp Thr Leu Asn Ala Met Asn Gly Arg Ala Ile His Ala Tyr
260 265 270

His Ile Glu Gly Ala Gly Gly Gly His Ser Pro Asp Val Ile Thr Met
275 280 285

Ala Gly Glu Val Asn Ile Leu Pro Ser Ser Thr Thr Pro Thr Ile Pro
290 295 300

Tyr Thr Ile Asn Thr Val Ala Glu His Leu Asp Met Leu Met Thr Cys
305 310 315 320

His His Leu Asp Lys Arg Ile Arg Glu Asp Leu Gln Phe Ser Gln Ser
325 330 335

Arg Ile Arg Pro Gly Ser Ile Ala Ala Glu Asp Val Leu His Asp Ile
340 345 350

Gly Val Ile Ala Met Thr Ser Ser Asp Ser Gln Ala Met Gly Arg Ala
355 360 365

Gly Glu Val Ile Pro Arg Thr Trp Gln Thr Ala Asp Lys Asn Lys Lys
370 375 380

Glu Phe Gly Lys Leu Pro Glu Asp Gly Ala Asp Asn Asp Asn Phe Arg
385 390 395 400

Ile Lys Arg Tyr Ile Ser Lys Tyr Thr Ile Asn Pro Ala Leu Thr His
405 410 415

Gly Val Ser Glu Tyr Ile Gly Ser Val Glu Glu Gly Lys Ile Ala Asp
420 425 430

Leu Val Val Trp Asn Pro Ala Phe Phe Gly Val Lys Pro Lys Ile Val
435 440 445

Ile Lys Gly Gly Met Val Val Phe Ser Glu Met Gly Asp Ser Asn Ala
 450 , 455 460

Ser Val Pro Thr Pro Gln Pro Val Tyr Tyr Arg Glu Met Phe Gly His
 465 470 475 480

His Gly Lys Ala Lys Phe Asp Thr Ser Ile Thr Phe Val Ser Lys Val
 485 490 495

Ala Tyr Glu Asn Gly Val Lys Glu Lys Leu Gly Leu Glu Arg Lys Val
 500 505 510

Leu Pro Val Lys Asn Cys Arg Asn Ile Thr Lys Lys Asp Phe Lys Phe
 515 520 525

Asn Asp Lys Thr Ala Lys Ile Thr Val Asp Pro Lys Thr Phe Glu Val
 530 535 540

Phe Val Asp Gly Lys Leu Cys Thr Ser Lys Pro Thr Ser Glu Val Pro
 545 550 555 560

Leu Ala Gln Arg Tyr Thr Phe Phe
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<211> 21

<212> DNA

<213> Helicobacter felis

<400> 16

catgcacttt ttgaaaaaag a

21

<210> 17

<211> 16

<212> DNA

<213> Helicobacter felis

<400> 17

tatggtgggc ttctct

16

<210> 18

<211> 32

<212> DNA

<213> Helicobacter felis

<400> 18

ggagtaacat atgaaactca cacccaaaga gc

32

<210> 19

<211> 27

<212> DNA

<213> Helicobacter felis

<400> 19

cacacccacg accatgtgag ggcttac

27

<210> 20

<211> 27

<212> DNA

<213> Helicobacter felis

<400> 20

gtaagccctc acatggctgt ggggtgtg

27

<210> 21

<211> 34

<212> DNA

<213> Helicobacter felis

<400> 21

cgaattcgga tcctagaaga aagtgtagcg ctgg

34